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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/806,415

01/14/2003

Joerg Hauptmann

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08/24/2006

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EXAMINER

DE GRANO, BRIAN L

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,415	HAUPTMANN ET AL.	
	Examiner	Art Unit	
	Brian L. De Grano	2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/3/2004</u> | 6) <input type="checkbox"/> Other: _____. |

5/14/2001.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because it contains the legal phrase "means". Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 1, 14-19 are objected to because of the following informalities: Parenthesis refer to examples of the claim limitations. Appropriate correction is required.

Claims 1-10 and 13-21 are objected to because of the following informalities: Claims refer to reference numbers. Please remove the reference numbers. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the digital adder". There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the first digital low pass-pass filter", "the first digital high-pass filter", "the second digital low-pass filter", and the second digital high-pass filter". There is insufficient antecedent basis for this limitation in the claim.

Claims 9-10 recite the limitation "the analogue/digital converter". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6-7, 11-17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Rybicki et al. (US Patent No. 5,781,728, hereinafter Rybicki et al.).

With respect to claim 1, Rybicki et al. discloses a line terminating device (Figure 3) for a subscriber line which transmits and receives broadband signals via a single subscriber line (Column 3, lines 12-14), a broadband signal being composed of a broadband or narrow band audio frequency voice signal (ISDN - Column 3, lines 12-14, POTS – Column 3, lines 38-41), and a broadband higher frequency data signal (ADSL – Column 3, lines 12-14), and the frequency bands of the voice signal and of the data signal essentially not overlapping (Column 4, lines 8-11), characterized in that a digital

frequency separating filter is provided which separates the audio-frequency voice signal and the higher frequency data signal from one another (Column 3, lines 60-63) and the digital frequency separating filter is arranged in the digital section of the terminating device (Column 5, lines 42-45).

With respect to claim 2, Rybicki et al. discloses an analog/digital converter (Figure 14 – Ref No. 223), a digital/analog converter (Figure 4), and that the digital frequency separating filter follows the ADC and precedes the DAC and separates the digital received signal into a first digital voice signal and first digital data signal (Figure 4 – Ref No. 118) and combines a second digital voice signal and a second digital data signal to form the digital transmit signal (Figure 6). Figure 4 shows the transmitter of the device which contains the DAC followed by a filter. The signal then travels from the transmitter to the receiver shown in figure 14 where it travels through yet another filter before reaching the ADC.

With respect to claim 6, Rybicki et al. discloses the that the digital frequency separating filter has a noise shaper filter which follows the digital adder (Column 7, line 19).

With respect to claim 7, Rybicki et al. discloses an oversampling sigma/delta ADC (Column 4, lines 23-25).

With respect to claim 11, Rybicki et al. discloses that the voice signal is an ISDN voice signal (Column 3, lines 12-14) and that the higher-frequency signal is an ASDL signal (Column 3, lines 12-14).

With respect to claim 12, Rybicki et al. discloses that the voice signal is a POTS signal (Column 3, lines 38-41) voice signal and that the higher-frequency signal is an ADSL signal (Column 3, lines 12-14).

With respect to claim 13, Rybicki et al. discloses that digital frequency separating filter is designed with a number of channels, in which arrangement in each case POTS/ISDN voice signals and ADSL data signals can be transmitted via the multiplicity of channels (Column 1, lines 46-48).

With respect to claim 14, Rybicki et al. discloses that the digital frequency separating filter has an echo canceller which is arranged both between an upstream signal path and a downstream path (Column 9, line 55).

With respect to claim 15, Rybicki et al. discloses that the echo canceller is provided for coarse correction and filters out an interference signal fed back by the digital separating filter (Column 9, lines 50-56).

With respect to claim 16, Rybicki et al. discloses that the echo canceller is only used with the ADSL and ISDN signals (Column 9, lines 50-56).

With respect to claim 17, Rybicki et al. discloses that the line terminating device has interfaces to the transceiver circuits for the ISDN/POTS signal and ADSL signal and/or the transceiver circuits themselves have in each case at least one further echo canceller which is used for fine correction of the interference signal set back in each case (Column 9, lines 50-56).

With respect to claim 21, Rybicki et al. discloses that the digital frequency separating filter has at least one sampling rate adaptation stage and a clock

synchronization unit which ensures that the sampling rates of the respective signal streams are equal magnitude at the summation point and at the splitting point (Figures 12 and 14, Column 9, lines 40-48). It is inherent that a downsampler would have a synchronized clock that ensured that the sampling rates were the same at various points throughout the circuit.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rybicki et al. in view of Russell et al. (US Patent No. 5,575,803, hereinafter Russel et al) as applied to claim 1 above.

Rybicki et al. discloses all the limitations of claim 3 except that the digital frequency separating filter does not have both a first digital low-pass filter and a digital high-pass filter being supplied with the digital received signal or that the digital frequency separating filter does not have both a second digital low-pass filter and a second digital high-pass filter and a digital adder.

Russel et al. discloses a circuit containing both a digital high pass filter and a digital low pass filter followed by a digital adder that combines the signals (Figure 1A and Column 1, lines 28-31).

With respect to claim 4, Rybicki et al. discloses a decimation filter (Figures 12 and 14).

With respect to claim 5, Rybicki et al. discloses an interpolation filter (Figures 4, 6, and 8).

With respect to claim 8, Rybicki et al. discloses a digital signal processor (Column 3, lines 42-43).

Rybicki et al. discloses all the limitations of claim 9 except that the ADC is preceded by an automatic gain control circuit for controlling the amplitude of the received broadband analog signal.

Russel et al. discloses an automatic gain controller (amplifier, Column 2, lines 21-22).

With respect to claim 10, Rybicki et al. discloses a DAC followed by a power cutback circuit for cutting back the power spectrum distribution (Column 10, lines 50-55).

At the time of the invention, It would be obvious to one of ordinary skill in the art to add the filtering circuit taught in Russel et al. to the line termination device disclosed in Rybicki et al.

The motivation for doing so would be to provide some means for a large trans-hybrid loss when the splitter is included (Russel et al., Column 3, lines 20-21).

Therefore it would've been obvious to combine Russel et al. with Rybicki et al. to obtain the invention in claims 3-5 and 8-10.

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rybicki et al. in view of Xu et al. (US Patent No. 6,005,854, hereinafter Xu et al) as applied to claim 1 above.

Rybicki et al. discloses all the limitations of claims 18-19 except that a pulse shaper follows the ADSL data signal.

Xu et al. teaches a pulse shaper and combiner (Figure 2, Ref No. 150 and Column 4, lines 16-24).

At the time of the invention, it would be obvious to one of ordinary skill in the art to add the pulse shaper taught in Xu et al. to the line termination device disclosed in Rybicki et al.

The motivation for doing so would be to create a communication system which reduces the channel capacity used to synchronize a remote terminal once a link is established (Xu et al., Column 2, lines 4-7).

Therefore it would've been obvious to combine Russel et al. with Rybicki et al. to obtain the invention in claims 18-19.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rybicki et al. in view of Chao et al. (US Patent No. 5,790,539, hereinafter Chao et al) as applied to claim 1 above.

With respect to claim 20, Rybicki et al. discloses that the digital frequency separating filter together with a transformer, a line driver circuit, and a coded circuit are integrated on a single chip. It is inherent that any xDSL and POTS/ISDN combined

termination device as disclosed in Rybicki et al. (Figure 3) would have a transformer, a line driver circuit, and a compressor/decompressor.

Rybicki et al. does not disclose that all of the circuits could be combined on a single chip.

Chao et al. teaches a system that has a variety of circuits all on a single chip (Figure 5).

At the time of the invention, it would be obvious to one of ordinary skill in the art to add the pulse shaper taught in Chao et al. to the line termination device disclosed in Rybicki et al.

The motivation for doing so would be to save space on a circuit board that could be used to create even more functionality for the system.

Therefore it would've been obvious to combine Russel et al. with Chao et al. to obtain the invention in claim 20.

Conclusion

Grube et al. (US Patent No. 5,495,483) was considered because it dealt with adding multiple carrier channels.

Hunt et al. (US Patent No. 5,400,322) was considered because it dealt with multi-carrier transmission and contained several coding circuits.

Wu (US Patent No. 4,644,526) was considered because it discussed frequency division multiplexing and a number of different filtering devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. De Grano whose telephone number is 571-270-1138. The examiner can normally be reached on Monday through Friday 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BD/

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